

# **R.V.R. & J.C. COLLEGE OF ENGINEERING :: GUNTUR**

**(Autonomous)**

## **CHOICE BASED CREDIT SYSTEM REGULATIONS (R-25) for 2-YEAR MASTER OF TECHNOLOGY (M.Tech.) Degree Program**

(w.e.f. the batch of students admitted into First Year M.Tech. from the academic year 2025-26)

### **1 MINIMUM QUALIFICATIONS FOR ADMISSION**

The eligibility criteria for admission into M.Tech. programme is as per the guidelines of Andhra Pradesh State Council of Higher Education (APSCHE), Amaravati.

- 1.1 Category - A Seats : The seats under this category shall be filled by the Convener, PGECET Admissions.
- 1.2 Category - B Seats : The seats under this category shall be filled by the College as per the guidelines of APSCHE.

### **2 BRANCHES OF STUDY**

The M.Tech. Courses are offered in the following branches of study:

Branch of Engineering	Specialisation Offered
Civil Engineering	Structural Engineering
Computer Science & Engineering	Computer Science & Engineering
Electrical & Electronics Engineering	Power Systems Engineering
Electronics & Communication Engineering	VLSI
Information Technology	Artificial Intelligence and Data Science
Mechanical Engineering	Machine Design

### **3 DURATION OF THE COURSE AND MEDIUM OF INSTRUCTION**

- 3.1 The duration of the course is two academic years consisting of two semesters in each academic year.
- 3.2 The medium of instruction and examination is English.

### **4 MINIMUM INSTRUCTION DAYS**

Each semester shall consist of a minimum number of 90 days of instruction excluding the days allotted for tests, examinations and preparation holidays.

### **5 REGISTERING THE COURSES**

- 5.1 A candidate has to register and secure 68 credits out of which 32 credits from laboratory courses, Internship, MOOCs including project work.
- 5.2 The structure of the M.Tech. Programme comprises of two semesters of course work consisting of 6 Core subjects + 6 Elective subjects + 4 Labs (or) 3 Labs + 1 Mini Project, followed by two semesters of Dissertation.
- 5.3 A candidate has to register and secure at least minimum pass grade in Research Methodology & IPR Course in I Year II Semester, for which no credit is awarded.

#### 5.4 MOOCs (Massive Open Online Course):

- Enrolment of MOOCs Course will be initiated from the date of commencement of class work for I Year I Semester.
- MOOCs course completion certificate of duration not less than 8 weeks, must be submitted on or before the last instruction day of II Year I Semester, for which 3 Credits will be awarded. The Grade is awarded based on the marks obtained in the MOOCs performance.
- List of organizations offering MOOCs course(s) will be announced by the respective Board of Studies at the time of commencement of class work for I Year I Semester.

#### 5.5 Internship / Industrial Training / Professional Certification :

- Internship / Industrial Training / Professional Certification should be taken up during the summer holidays for a period of 4-8 weeks.
- Internship / Industrial Training / Professional Certification completion certificate must be submitted along with a report and presentation during the II Year I Semester Internal evaluation.

#### 5.6 Dissertation shall be carried out under the Supervision of a Faculty Member in the concerned department.

- A student may, however, in certain cases, be permitted to work on his/her dissertation at the place of employment, any recognized Institution / R&D Organization / Industry with the approval of the Head of the Department concerned and Head of the Organization / Industry. In such cases, the dissertation shall be jointly supervised by a member of the faculty and a person from the Organization / Industry.
- The student is eligible for submission of M.Tech., dissertation report at the end of the II Year II Semester if he/she passed all the credit courses in the previous semesters.
- In a special case, if any student unable to submit his/her dissertation report at the end of II Year II Semester due to any other reason permitted by the head of the institution, he/she will be allowed to submit at a later date and the viva-voce examination will be conducted separately.

#### 5.7 The student has to publish (or) get acknowledgement for acceptance of publication in at least one paper in a Conference / peer reviewed Journal related to his / her work to get eligibility to submit the Dissertation.

## 6 LABORATORY / PRACTICAL COURSES

In any semester, a minimum of 10 experiments / exercises specified in the syllabus for laboratory course shall be completed by the student and get the record certified by the concerned Head of the Department, to be eligible to appear for the Semester End Examination in that Practical course.

## 7 ATTENDANCE

7.1 Students shall put in attendance of not less than 75% in aggregate in the prescribed subjects in each semester.

7.2 Condonation for shortage in attendance up to 10% in any subject may be condoned by the

Principal of the College for reasons of ill health and the application is submitted through proper channel at the time of actual illness and is supported by a certificate from the authorized Medical Officer approved by the Principal.

- 7.3 If the student does not satisfy the attendance requirement in any subject he or she shall not be permitted to appear for the Semester End examination in that subject and has to repeat that subject when next offered.

## **8 SCHEME OF INSTRUCTION AND EVALUATION**

8.1 Instruction in various subjects shall be provided by the college as per the Scheme of instruction and syllabi prescribed.

### **8.2 Continuous Internal Assessment (CIA):**

- The performance of the student in each semester is evaluated subject wise. In each Semester, there shall be two Internal Examinations consists of a Sessional Test for 30 Marks and an Assignment / Class room performance for 10 Marks. The semester end examination is conducted for 60 marks. The Internal Evaluation for Theory subjects is based on the 80% (24 out of 30 marks) weightage given to the best of the performances and the remaining 20% (6 out of 30 marks) for the least performance, in the two midterm examinations one held in the middle of the semester and the other held immediately after the completion of the instruction.
- The internal evaluation for practical subjects consists of a weightage of 25 marks for day to day laboratory work including record work and 15 marks for semester end internal practical Examination including Viva-voce examination.
- In case of Mini Project work, the sessional marks shall be awarded based on the performance in two Seminars evaluation by a panel of the department and the Report submitted at the end of the semester.
- The internal evaluation for the Project work, sessional marks will be given based on performance in progress reviews, internal viva voce and the final project report submitted at the end of the semester.

### **8.3 Semester End Examination (SEE):**

- At the end of each semester, Semester End Examinations shall be held as prescribed in the scheme of examination.
- For taking the Semester end examination in any theory or practical subject, students shall be required to obtain a minimum of 50% marks in Internal evaluation in that subject failing which he / she is required to repeat the subject when offered in next year.
- For each theory subjects, there is a comprehensive Semester End Examination at the end of each Semester.
- For each laboratory subject the Semester End Examination is conducted by one internal and one external examiner appointed by the Principal of the College.
- Examination in Dissertation Phase-I and Phase-II is conducted by one internal examiner and one external examiner appointed by the Principal.
- If any student failed in any subject, then he/she has to appear the supplementary examinations in that subject whenever conducted and obtain pass grade.

8.4 The performance of the students in each semester is evaluated subject wise. The distribution of marks between internal assessment and Semester End Examination is as follows:

Nature of the Courses	CIA Marks	SEE Marks
Theory Courses / Practical Courses / Internship / Professional Certification / Mini Project / Dissertation Phase-I / Phase-II	40	60
MOOCs	---	100

## 9 CONDITION(S) FOR PROMOTION

A student is eligible for promotion to next semester, if he / she satisfies the minimum requirements of attendance and 50% of sessional marks in 50% of the Theory Subjects (in case of raction, round to lower integer), as stipulated in **Clauses 7 and 8**.

## 10 CONDITIONS FOR PASS

A student is declared to have passed in individual subject if he / she secures a minimum of 40% marks in theory and 50% marks in Laboratory / Project Work in Semester End Examination and a minimum of 50% marks in both Sessional & Semester End Examination put together.

## 11 AWARD OF CREDITS

Each theory subject / laboratory subject / Skill Enhancement Courses / MOOCs / internships / Project Work awarded with the credits assigned, when a students obtain minium pass garade in that respective subject.

### 11.1 AWARD OF GRADES

S.No.	Range of Marks	Grade	Grade Points
1	≥ 90 %	A+	10.0
2	≥ 80% - < 90%	A	9.0
3	≥ 70% - < 80%	B	8.0
4	≥ 60% - < 70%	C	7.0
5	≥ 55% - < 60%	D	6.0
6	≥ 50% - < 55%	E	5.0
7	< 50%	F	0.0
8	The grade 'W' represents withdrawal / absent	W	0.0

11.2 A candidate securing 'F' grade in any course there by securing zero grade points has to reappear and secure at least 'E' grade in the subsequent examinations for that course.

11.3 After each semester, Grade sheet will be issued which will contain the following details:

- The list of courses for each semester and corresponding credits and grades obtained
- The Semester Grade Point Average (SGPA) for each semester.
- The Cumulative Grade Point Average (CGPA) of all courses put together up to that semester.

SGPA is calculated based on the following formula: 
$$\frac{\sum [\text{No. of Credits} \times \text{Grade Points}]}{\sum \text{No. of Credits}}$$

CGPA will be calculated in a similar manner, considering all the courses up to that semester.

11.4 A consolidated Grade Sheet shall be issued to the candidate, after completing all, indicating the CGPA of all the Two years put together.

11.5 Conversion of CGPA into equivalent Percentage :

$$\text{Percentage of Marks} = (\text{CGPA} - 0.50) \times 100$$

## 12 ELIGIBILITY FOR AWARD OF M.TECH. DEGREE

The M.Tech. Degree shall be conferred on a student who satisfies the following requirements :

12.1 The student who satisfies the conditions for pass in all the subjects including labs of all the years as stipulated in **Clauses 10**.

12.2 Maximum Time Limit for completion of M.Tech Degree: A candidate, who fails to fulfil all the academic requirements for the award of the degree within four academic years from the year of admission, shall forfeit his/her seat in M.Tech. Degree.

S.No.	Class	CGPA
1	First Class With Distinction	7.5 or more
2	First Class	6.5 or more but less than 7.5
3	Second Class	5.5 or more but less than 6.5
4	Pass Class	5.0 or more but less than 5.5

## 13 AWARD OF RANK

The rank shall be awarded based on the following :

13.1 Ranks shall be awarded in each branch of study for the top ten percent of the students appearing for the Regular Semester End Examinations or the top two students whichever is minimum.

13.2 The Rank shall be awarded only to those students who completes their degree within two academic years.

13.3 For the purpose of awarding rank in each branch, those students who have passed all subjects in the first attempt shall be considered.

## 14 SUPPLEMENTARY EXAMINATIONS

In addition to the Regular semester end examinations held at the end of each semester, supplementary examinations will also be conducted during the academic year. Such candidates taking the Regular / Supplementary examinations as supplementary candidates may have to take more than one examination per day.

## 15 TRANSITORY REGULATIONS

15.1 A student, studied under R-21 regulations of RVR & JCCE (Autonomous) curriculum and discontinued the I Year I Semester course, shall join in I Year I Semester of R-25 regulations.

15.2 A student, studied under R-21 regulations of RVR & JCCE (Autonomous) curriculum and discontinued the I Year II Semester course and also at the subsequent semesters will follow the same R-21 regulations/ curriculum and he / she has to complete the subject by appearing the examinations conducted by the college under R-21 curriculum.

## 16 CONDUCT AND DISCIPLINE

- 16.1 Candidates shall conduct themselves within and outside the premises of the institute in a manner befitting the candidates of our institution.
- 16.2 As per the order of Honourable Supreme Court of India, ragging in any form is considered as a criminal offence and is banned. Any form of ragging will be severely dealt with.
- 16.3 The following acts of omission and / or commission shall constitute gross violation of the code of conduct and are liable to invoke disciplinary measures with regard to ragging.
- a Lack of courtesy and decorum, indecent behaviour anywhere within or outside the campus.
  - b Wilful damage of college / individual property
  - c Possession, consumption or distribution of alcoholic drinks or any kind of narcotics or hallucinogenic drugs.
  - d Mutilation or unauthorized possession of library books.
  - e Noisy and unseemly behaviour, disturbing studies of fellow candidates.
  - f Hacking of computer systems (such as entering into other person's areas without prior permission, manipulation and / or damage of computer hardware and software or any other cyber-crime etc.)
  - g Usage of camera / cell phone in the campus
  - h Plagiarism of any nature
  - i Any other acts of gross indiscipline as decided by the academic council from time to time.
- 16.4 Commensurate with the gravity of offense, the punishment may be reprimand, fine, expulsion from the institute / hostel, debar from examination, disallowing the use of certain facilities of the institute, rustication for a specified period or even outright expulsion from the institute or even handing over the case to appropriate law enforcement or the judiciary, as required by the circumstances.
- 16.5 For an offence committed in (i) a hostel (ii) a department or in a class room and (iii) elsewhere, the chief warden, the head of the department and the principal respectively, shall have the authority to reprimand or impose fine.
- 16.6 Cases of adoption of unfair means and / or any malpractice in an examination shall be reported to the principal for taking appropriate action.
- 16.7 All cases of serious offence, possibly requiring punishment other than reprimand, shall be reported to the academic council.
- 16.8 The institute level standing disciplinary action committee constituted by the academic council shall be the authority to investigate the details of the offence, and recommend disciplinary action based on the nature and extent of the offence committed.
- 16.9 The principal shall deal with any academic problem, which is not covered under these rules and regulations, in consultation with the programmes committee in an appropriate manner, and subsequently such actions shall be placed before the academic council for ratification.

Any emergency modification of regulation, approved by the appropriate authority, shall be reported to the academic council for ratification.

- 16.10 "Grievance and Redressal Committee" (General) constituted by the Principal shall deal with all grievances pertaining to the academic / administrative / disciplinary matters.

## **17 MALPRACTICES**

- 17.1 The Principal shall refer the cases of malpractices in internal assessment tests and semester-end examinations to a malpractice enquiry committee constituted by him / her for the purpose. Such committee shall follow the approved scales of punishment. The principal shall take necessary action, against the erring candidates basing on the recommendations of the committee.
- 17.2 Any action on the part of a candidate during an examination trying to get undue advantage or trying to help another, or drive the same through unfair means is punishable according to the provisions contained hereunder. The involvement of the staff, who are in-charge of conducting examinations, valuing examination papers and preparing / keeping records of documents relating to the examinations in such acts (inclusive of providing incorrect or misleading information) that infringe upon the course of natural justice to one and all concerned in the examination shall be viewed seriously and recommended for award of appropriate punishment after thorough enquiry.

## **18 AMENDMENTS TO REGULATIONS**

The College may, from time to time, revise, amend, or change the Regulations, Schemes of Examinations, and / or Syllabus.

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## Department of Information Technology

### M.Tech.(ARTIFICIAL INTELLIGENCE & DATA SCIENCE)

(w.e.f. the batch of students admitted from the academic year 2025-2026)

### Scheme(R25)

### I YEAR I Semester

S.No	Code	SUBJECT	Scheme of Instruction periods per week		Scheme of Examination			Total
			Theory	Lab	Internal Marks	Semester End Exam Marks	Credits	
1	AD511	Advanced Data Structures and Algorithms	3		40	60	3	100
2	AD512	Principles of Artificial Intelligence	3		40	60	3	100
3	AD513	Introduction to data Science	3		40	60	3	100
4	AD514	Professional Elective-I	3		40	60	3	100
5	AD515	Professional Elective-II	3		40	60	3	100
6	AD516	Professional Elective-III	3		40	60	3	100
7	AD551	Advanced Data Structures and Algorithms Lab		4	40	60	2	100
8	AD552	Artificial Intelligence and Machine Learning Lab		4	40	60	2	100
		<b>Total</b>	<b>18</b>	<b>8</b>	<b>320</b>	<b>480</b>	<b>22</b>	<b>800</b>



**M.Tech.(ARTIFICIAL INTELLIGENCE & DATA SCIENCE)**

**I YEAR II Semester**

S.No	Code	SUBJECT	Scheme of Instruction periods per week		Scheme of Examination			Total
			Theory	Lab	Internal Marks	Semester End Exam Marks	Credits	
1	AD521	Advanced Java Programming	3		40	60	3	100
2	AD522	Generative AI	3		40	60	3	100
3	AD523	Data Visualization and Interpretation	3		40	60	3	100
4	AD524	Professional Elective-IV	3		40	60	3	100
5	AD525	Professional Elective-V	3		40	60	3	100
6	AD526	Professional Elective-VI	3		40	60	3	100
7	AD561	Advanced Java Programming Lab		4	40	60	2	100
8	AD562	Data Visualization Lab		4	40	60	2	100
9	MC01	Research Methodology and IPR	3		100	-	-	100
		<b>Total</b>	<b>21</b>	<b>8</b>	<b>420</b>	<b>480</b>	<b>22</b>	<b>900</b>

**M.Tech.(ARTIFICIAL INTELLIGENCE & DATA SCIENCE)**

**II YEAR III Semester**

S.No	Code	SUBJECT	Scheme of Instruction periods per week		Scheme of Examination			Total
			Theory	Lab	Internal Marks	Semester End Exam Marks	Credits	
1	AD611	MOOCS	-	-	-	100	2	100
2	AD651	Internship	-	-	100	-	2	100
3	AD652	Dissertation Phase-I	-	-	100	-	6	100
		<b>Total</b>	<b>-</b>	<b>-</b>	<b>200</b>	<b>100</b>	<b>10</b>	<b>300</b>

**M.Tech.(ARTIFICIAL INTELLIGENCE & DATA SCIENCE)**

**II YEAR IV Semester**

S.No	Code	SUBJECT	Scheme of Instruction periods per week		Scheme of Examination			Total
			Theory	Lab	Internal Marks	Semester End Exam Marks	Credits	
1	AD661	Dissertation Phase-II	-	-	40	60	14	100
		<b>Total</b>	-	-	<b>40</b>	<b>60</b>	<b>14</b>	<b>100</b>

**M.Tech (Artificial Intelligence & Data Science)  
List of Electives**

<b>Professional Electives List</b>	
<b>Course Code</b>	<b>Courses</b>
ADEL01	Statistics with R
ADEL02	Statistical Foundations For Data Science
ADEL03	Artificial Neural Networks
ADEL04	Machine Learning
ADEL05	Natural Language Processing
ADEL06	Computer Vision
ADEL07	Soft Computing
ADEL08	Reinforcement Learning
ADEL09	Big Data Analytics
ADEL10	Deep Learning
ADEL11	Optimization Techniques for Data Analysis
ADEL12	Cyber security and Forensics
ADEL13	Data analysis with Python
ADEL14	Virtual and Augmented Reality
ADEL15	Scalable Algorithms for Data Analysis

ADEL16	Web Mining and Social Network Analysis
ADEL17	Quantum Computing
ADEL18	Cloud Computing and Technology
ADEL19	Business Analytics and Modeling
ADEL20	Responsible AI
ADEL21	Optimization Techniques in Machine Learning
ADEL22	Information Retrieval
ADEL23	Image and Video Analytics
ADEL24	Industry Recommended Elective